

APPENDIX

30. (Once amended) A screening method for determining whether an agent modulates binding between a target analyte and an adsorbent comprising the steps of:

- a) providing a substrate comprising an adsorbent to which the target analyte binds under an elution condition;
- b) exposing the substrate to the target analyte and to the agent under the elution condition [to allow] that allows binding between the target analyte and the adsorbent;
- c) [detecting] measuring an amount of binding between the target analyte and the adsorbent by desorption spectrometry, wherein desorption spectrometry comprises desorbing and ionizing the target analyte from the adsorbent with an energy source and detecting the desorbed and ionized target analyte with a detector; and
- d) [determining whether the measured amount is different than a control amount of binding when the substrate is exposed to the target analyte under the elution condition without the agent] determining whether the agent modulates binding by comparing the measured amount of binding between the target analyte and the adsorbent in the presence of the agent and a control amount of binding between the target analyte and the adsorbent without the presence of the agent.;  
[whereby] a difference between the measured amount and the control amount [indicates] indicating that the agent modulates binding.

33. (Once amended) The method of claim 30, wherein the agent is selected from a combinatorial library of agents and wherein the substrate comprises a plurality of adsorbents, the method further comprising [for screening a combinatorial library of agents comprising] exposing each of a plurality of agents in the library to each of a plurality of the adsorbents.

34. (Once amended) The method of claim [31] 30 wherein the [ligand is] adsorbent comprises an enzyme and the target analyte [is] comprises a substrate of, or an inhibitor for, the enzyme, or vice-versa.

35. (Once amended) The method of claim [31] 30 wherein the [ligand is] adsorbent comprises a hormone and the target analyte [is] comprises a cell surface receptor or an intracellular receptor of the hormone, or vice-versa.

36. (As filed) The method of claim 30, wherein the adsorbent comprises a small organic molecule or a biopolymer.

37. (As filed) The method of claim 30, wherein the adsorbent comprises a cell.

38. (As filed) The method of claim 30, wherein the adsorbent comprises a cell membrane.

39. (As filed) The method of claim 30, wherein the adsorbent comprises a virus.

40. (As filed) The method of claim 30, wherein the adsorbent comprises a chemically derivatized functional group.

41. (As filed) The method of claim 36, wherein the adsorbent comprises a nucleic acid.

42. (As filed) The method of claim 36, wherein the adsorbent comprises a polypeptide.

43. (As filed) The method of claim 36, wherein the adsorbent comprises a fusion protein.

44. (As filed) The method of claim 36, wherein the adsorbent comprises a cell surface receptor.

45. (As filed) The method of claim 36, wherein the adsorbent comprises a glycoprotein.

46. (As filed) The method of claim 36, wherein the adsorbent comprises an antibody.

47. (As filed) The method of claim 36, wherein the adsorbent comprises a carbohydrate.

48. (As filed) The method of claim 36, wherein the adsorbent comprises a lectin.

49. (As filed) The method of claim 30, wherein the target analyte comprises a small organic molecule or a biopolymer.

50. (As filed) The method of claim 30, wherein the target analyte comprises a cell.

51. (As filed) The method of claim 30, wherein the target analyte comprises a cell membrane.

52. (As filed) The method of claim 30, wherein the target analyte comprises a virus.

53. (As filed) The method of claim 49, wherein the target analyte comprises a nucleic acid.

54. (As filed) The method of claim 49, wherein the target analyte comprises a polypeptide.

55. (As filed) The method of claim 49, wherein the target analyte comprises a fusion protein.

56. (As filed) The method of claim 49, wherein the target analyte comprises a cell surface receptor.

57. (As filed) The method of claim 49, wherein the target analyte comprises a glycoprotein.

58. (As filed) The method of claim 49, wherein the target analyte comprises an antibody.

59. (As filed) The method of claim 49, wherein the target analyte comprises a carbohydrate.

60. (As filed) The method of claim 49, wherein the target analyte comprises a lectin.

61. (As filed) The method of claim 30, wherein the adsorbent comprises a nucleic acid and the target analyte comprises a protein, or vice versa.

62. (As filed) The method of claim 30, wherein the adsorbent comprises a DNA-binding protein and the target analyte comprises a DNA, or vice versa.

63. (As filed) The method of claim 30, wherein the adsorbent comprises a protein and the target analyte comprises a protein.

64. (As filed) The method of claim 30, wherein the adsorbent comprises an antigen and the target analyte comprises an antibody, or vice versa.

65. (As filed) The method of claim 30, wherein the adsorbent comprises a protein and the target analyte comprises a genetic package, or vice versa.

66. (As filed) The method of claim 30, wherein the agent is a small molecule.

67. (As filed) The method of claim 33, wherein the combinatorial library is a peptide library, an antibody library or a genetic package library.

68. (As filed) The method of claim 30, wherein the desorption spectrometry is a laser desorption/ionization mass spectrometry.

69. (As filed) The method of claim 30, wherein the target analyte is detectably labeled with a fluorescent moiety or a radioactive moiety.

70. (New) The method of claim 30, wherein the agent is a drug candidate.
71. (New) The method of claim 30, wherein the agent is a drug candidate and wherein the target analyte comprises a protein and wherein the adsorbent comprises a ligand that binds to the target protein.
72. (New) The method of claim 71, wherein the ligand is a single-chain antibody specific for the target protein.
73. (New) The method of claim 30, wherein the substrate comprises a plurality of adsorbent spots, each spot comprising the same adsorbent.
74. (New) The method of claim 30, wherein the substrate is a probe adapted for a desorption spectrometer which comprises adsorbents at different predetermined locations which are addressable by the energy source.
75. (New) The method of claim 30, wherein the substrate is in the form of a bead which is subsequently positioned on a probe adapted for a desorption spectrometer.